

May 22, 2005
15621 SE 26th Street
Bellevue, WA 98008

Dear Friends:

Murray Willer Obituary. Tom Perera read the following at the AWA conference in August:

Murray Willer founded the key and telegraph Seminar many years ago and built it from a small roundtable discussion group to one of the major components of the annual AWA conference. Murray passed away on May 28, 2004 at 91 years of age.

The following obituary was provided by Murray's wife, Marilyn:

Murray Willer was born on May 19, 1913. He graduated from the University of Toronto with a degree in Engineering. He worked in the Aircraft Industry until the start of World War II. After the war, he opened Willer Engineering. This company has offices throughout Canada and is one of the largest companies today. His love of life, his family, his main interest in hobbies, his telegraph collection and the history of each key were the main focus points of his life. I would like to dedicate this and future meetings of the Key and Telegram seminar to his memory.

NI8G wake. On Sunday August 8, 2004, the XYL and I went to Tom's wake, which was held at the Milan Wonder Bar! Friends of Tom provided free beer, bourbon, and food for 4 hours. There must have been 200 or more people there for the festivities! I have heard many people say that they wanted a "happy wake", with their friends around having a great time. This is the first time that I have seen anyone carry through with those plans! Too bad we live 1 1/2 hours from Milan, so we had to keep our consumption down. Actually the XYL was supposed to be the designated driver, but she sort of fell off the wagon, and I had to assume that role! **Don K8MFO**

George Bliss Key. I was fortunate to recently acquire a Bliss Key. I posted a photo on my website and received several comments about it. The following is from Doug Seneker:

Lynn, I have an early Bliss KOB and did a little digging as a result. You can see my KOB in TVC 23, p. 4. Apparently George H. Bliss and Tillotson hooked up together right after the Civil War, as reflected in Roger Reinke's great list. The association between the two is a bit convoluted. Disregarding Tillotson's earlier partners and locations, by 1868 he appears to be at 11 Dey Street, NYC and at the same period was a partner in Bliss, Tillotson & Co. at 171 S. Clark in Chicago. The two were together through two more moves, 1870-1874 at 274 Water St, Chicago, then 54 S. Fourth in Phila, after which Tillotson's name is gone and Bliss is back in Chicago at 41 3rd Ave. Tillotson, in the meantime, still had operations under his own name at 11 Dey St, 8 Dey St, the 5 and 7 Dey St, then sold out to E.S. Greely & Co at that same address around 1885. All that may not make too much sense. I had to make up block diagrams and cross connect them to get that far along. **Doug Seneker. NØWAN**

Early N2DAN Paddles. Over the years I have built a database of over 5000 key ads and articles. I have been a hold-out and maintained it in an ancient DOS based program, but finally bit the bullet and converted the whole works to Microsoft Access. I was cleaning up the files when the name 'Nurkiewicz' caught my eye. The ARRL gave me permission to reprint the following. Unfortunately, I don't have an original copy of this magazine, and the CD version of the photos is pretty crude, so I can't publish the pictures. The pictures are intriguing – all of the four sets of paddles are marked, so there are some real N2DAN treasures out there gathering dust someplace!

Magnetic Keyer Paddles
BY STEVE S. NURKIEWICZ, WA2YBR.
Reprinted courtesy April 1968 QST

Because I've never been completely satisfied with the feel of commercially-made keyer paddles, I decided to try my hand at some improvements, beginning with a standard Vibroplex paddle.

As you can see from Photo A, I first substituted magnets for the spring that controls dot-lever tension. One of a pair of magnets from a couple of old b.c. receiver speakers was epoxied to the end of the lever and the other to a screw that was mounted on a threaded post. "Tension" is adjusted by changing the gap between the magnets, running the screw on which the movable magnet is mounted in or out. The closer the magnets approach, the more the force that's needed to make the dots.

I tried the same arrangement on the dash side too. It can be done, and it worked fine, but there isn't a great deal of spare space on the paddle so it got pretty cluttered up. Photo B shows this type of conversion on another Vibroplex paddle.

To improve the action further, I also removed the stock friction bearings (in which the pivot normally rides, replacing them with tiny ball bearings — the kind which are normally used for hopping up model slot racers. You can get these bearings at any good hobby shop.

It was inevitable that I should try building a paddle from scratch. In my early attempts I had to machine a number of parts myself, but Photo C is a shot of a later scratch-built job that is much easier because many of the parts can be bought right out of a catalog. This is the PIC - catalog - obtainable from PIC Design, Corp, 477 Atlantic Ave., East Rockaway, N. Y. 11518.

There are PIC authorized re-sale agents practically in every state, major cities and in a number of foreign countries, so you might be able to pick up the parts yourself. You can't buy a base, but most of the other metal parts I used came from stock. I made a base from a slab of steel, preferring that heavy metal because I have a very heavy hand. Aluminum would be easier to machine and will do the job, if it is screwed down to the operating desk to keep it from walking away. Photos 1) and E show my latest attempt to build the paddle I've been looking for, and I think I have done a good job.

The design is different, it has separate dot-dash arms pivoted in ultra-precision ball bearings, double shielded and greased for life (PIC No. E4-6, \$3.02 each). Four are needed. The magnets used in the earliest models have been replaced by ones much smaller in size, but equally strong (Lafayette Radio #1-1C3309, 394 each). They are predrilled, so epoxy isn't needed. You will also notice that only two magnets are used in this model. Standard steel bolts with filed-down heads have been substituted for the other two. The magnetic field is strong enough to do the job.

There are many old bugs and keys around collecting dust and just asking to be put to use again, with a little effort and spare time. Why not make them magnetic?

Many of my CW operators friends have tried my paddles, and without exception think they're fine. The lever action is extremely smooth, yet positive, and every trace of the side-play you find in commercial paddles has been eliminated. [QST]

Marconi Collection move. (*Press release dated December 6, 2004*) Marconi Corporation plc and The University of Oxford today announced an agreement to transfer the historic Marconi Collection to The Bodleian Library and The Museum of the History of Science, both part of the University of Oxford. Marconi has agreed to gift the Collection to the University where it will have a safe and secure future, preserving the integrity of this unique collection. Through the generosity of the Wireless Preservation Society a full time archivist will be appointed to catalogue the Collection over the next three years.

Dating from 1895, this is an unrivalled collection of Marconi artifacts, apparatus and printed material, much of which formed the basis of early wireless communication. This includes:

- The early patents, such as the famous "7777" patent which, in 1900, solved the problem of multi-station operation without mutual interference;
- Apparatus used in the first transatlantic wireless transmission of 1901;
- A wealth of historical documents including telegrams sent during the Titanic disaster of 1912; whose subsequent Board of Enquiry endorsed the recommendations of Guglielmo Marconi, fundamentally improving safety at sea and saving countless lives, and
- Items relating to the birth of broadcasting, such as the microphone used by the legendary Australian diva, Dame Nellie Melba to broadcast the world's first live recital in 1920.

The Museum of the History of Science will put on permanent public display some of the over 250 artifacts from the Collection. In an adjacent building The Bodleian Library will house the thousands of papers, letters and other printed material going back to 1895, making them available for viewing and research access. The BAFTA award-winning website www.marconicalling.com, based on the Marconi Collection, is also to be transferred to the University.

Oxford University has commenced planning for a major exhibition of items from the Collection in the spring of 2006.

It is expected that Oxford University will work together with the Essex Record Office and the Museums Service in Chelmsford such that a representative set of historic items from the Collection are on display at an appropriate location in the town, the original home of the Marconi Company from 1898 and the acknowledged "Birthplace of Radio".

Mike Parton, Chief Executive of Marconi, said; "We have been concerned to find a secure and lasting home for this precious and historic collection, which is of world importance. The Collection will be maintained as a single entity offering the best possible access for serious academic researchers and students. The many visitors to Oxford will have the chance to see some of the original instruments used by the 'Father of Radio', Guglielmo Marconi."

Dr John Hood, Vice-Chancellor, University of Oxford said: "The gift of the Marconi Collection is a significant acquisition for Oxford which will enhance the University's standing as a major cultural and scientific repository. This important archive will join extensive collections of scientific books and archives at the Bodleian Library and an unrivalled collection of historic scientific instruments at the Museum of the History of Science, attracting researchers and interested members of the public from around the world."

Rod Burman, Chairman of the Trustees of The Wireless Preservation Society said: "The Society is delighted to be in a position to support the Bodleian Library in its work to archive the very important Marconi papers that are being generously donated by the Marconi Corporation, thereby ensuring the preservation and accessibility of the Collection for future generations."

Gordon Bussey, FRHist.S, Wireless Historian and Author commented: "This is a marvelous achievement. It is most fitting that the world's most important collection in the history of wireless communications should be gifted for the nation to one of Britain's most prestigious universities, where it will be conserved and made available for research."

For more information contact David Beck (Marconi) on 020 7306 1490, email: david.beck@marconi.com , or the University of Oxford Press Office on 01865 280531, email: press.office@admin.ox.ac.uk

Further editorial and media resources, including an 1874 - 1937 image gallery with captions, copy and extensive background information is available at: www.marconi.com/MarconiCollection

Hints from W4PAL. WR Smith is a well known clock maker and creator of telegraph keys. He has passed along several hints for key repair and maintenance:

Cleaning telegraph keys.

Although there are many who would never wash a key, there are those who do. In the repair of speed keys, I often find one that has been washed in the kitchen sink and improperly dried. In these keys, water makes its way into the area around the screw threads and onto the cavity of blind screw holes and sets about destroying the parts. In the best case, only the screw is damaged. In the worst case, the screw freezes in the hole and

twists off flush with the surface of the brass part. This is a situation that only a few of us are capable of managing. Those who have a need to wet a key for any reason can avoid the rusting problem by removing the paddle and knob and placing the key in the kitchen oven for about two hours at 150 degrees to ensure that any trapped moisture has been evaporated.

Removing Rust From Screws. There are many tricks from the watchmaking, clockmaking and engineering fields that are useful to the collectors of telegraph keys.

Often telegraph keys are found with heavily rusted screws. My belief is that rust is a destructive force, should not be considered a patina, and should be removed when possible.

By far the simplest way to remove rust is with an acid, the phosphoric in Naval Jelly being the best. However, this is expensive. The second best way is in a solution of muriatic acid and water (pour acid on water, never water on acid). Muriatic acid is readily available in hardware stores and is used for cleaning mortar, and adjusting the pH in swimming pools. However, most people balk at the thought of a gallon jug of acid sitting around. So, there is a simpler and even cheaper solution to the problem.

Place the rusty screws in a very small bowl and cover them with your wife's Lime A-Way toilet bowl cleaner (\$1.98 for 24 ounces). This contains hydrochloric acid of which muriatic is considered an impure form. Leave the screws for an hour or so and then rinse them in water, soak them in a solution of water and baking soda to neutralize the acid, dry them thoroughly with heat and cover them with oil to prevent new rust.

Handling Screws In Acid. Acids are a hazard and great care must be exercised when using them. Lime A-Way contains hydrochloric acid and must be treated with caution. However, here is a trick that I have found very useful. When removing rust from screw with Lime A-Way, I have found it difficult to manage the screws wearing rubber gloves. Thus, I use chopsticks for manipulating the screws in the acid. They can be manipulated with chopsticks and rubber gloves or, with care, only chopsticks. This allows a screw to be lifted from the acid, held under a stream of water, examined and returned to the acid, etc.

Repairing An Improper Height Pendulum Assembly. During the repair of speed keys, I often encounter a key with the pendulum at an incorrect elevation on its arbor. I have no idea why this occurs; however, since the contacts do not match because the position of the pendulum assembly is beyond the range of the adjustment screws, it needs to be corrected.

First, the arbor and dot bar should be inspected carefully. In some keys, the bar location on the arbor is secured with a cross drilled screw. In some keys, the arbor is pressed into an under sized hole. In one case I have noted, the arbor hole was drilled and reamed for a

slip fit on the arbor and then a round nose punch was used to push a dimple in the side of the dot bar to slightly close a small portion of the arbor hole.

Correcting the dash bar position having a cross drilled screw is obvious. However, for the latter two cases, the correction is equally simple. Grip the arbor in a bench vise, leaving clearance between it and the dash bar ears, place a brass rod with a hole in its end over the other end of the arbor and drive the assembly to the desired location on the arbor.

Pickling A Silver Brazed Part. In at least one example in the Key Letter there was a description of a part having been silver brazed. This always results in a severe discoloration of the part in the area around the brazed portion. In most shops, this part would be placed in a pickle bath to remove the oxidation associated with the brazing. For steel or un-plated brass or for a part that is to be re-plated, soaking it in Lime A-Way will remove the oxidation. *WR Smith, W4PAL*

Rust Removal by Electrolysis. Electrolysis is a standard technique in the artifact restoration field. Most of the tool collectors around here use it. The process requires a plastic tub, a stainless steel or iron electrode, water, washing soda (NOT baking soda!!) and a battery charger.

Add about a tablespoon of soda (Sodium Carbonate or Sodium Bisulphate) to a gallon of water. Either of these can be purchased at any pool or spa supply for less than \$5. It is used to lower the PH of the pool or spa. If you want, a small amount of TSP (Tri Sodium Phosphate) can be added to enhance the mixture. If you have trouble locating the washing soda, household lye will work just fine. Add about a tablespoon of lye to a gallon of water, this solution will be a tad nastier to use. Always wear eye protection and be sure to add the lye to the water (NOT water to lye!!!). The solution is weak, and is not generally harmful, though you might want to wear gloves.

The iron electrode works best if it surrounds the object to be cleaned, since the cleaning is "line of sight" to a certain extent. The iron electrode will be eaten away with time. Stainless steel (some alloys, but not all) has the advantage that it is not eaten away. The electrode is connected to the positive (red) terminal and the OBJECT being cleaned, to the negative. You can use any DC voltage (4, 8, 12 or higher) depending on how quickly you want the cleaning to proceed. The higher the voltage the faster it works and the closer you must watch your brew. Submerge the object, making sure you have good electrical contact, which can be difficult with heavily rusted objects (a large alligator clip will help). Turn on the power. If your charger has a meter, be sure some current is flowing. Again, although good electrical contact may be hard to make, it is essential. If necessary, wire brush a small area. Fine bubbles of Hydrogen and Oxygen will rise from the object. These bubbles are potentially explosive, under the right conditions, so do not do this in a closed room but outside or in a well-ventilated area. Go away and come back in a few hours. Rub the object under running water with a plastic pot scrubber or Scotch Brite. Depending on the amount of original rust, you may have to re-treat as many times as necessary.

The polarity is important!! The surface rust is being converted to metallic iron, so the process is totally self-limiting. I have left things (by mistake) for several days: the water was largely gone,

boiled away by the electrolysis, but the object was fine. Reverse the polarity and your object is being eaten away!!! The rust will go along with it, but then what do you have???

There are many variants: suspending an electrode inside to clean a cavity in an object; using a sponge soaked in the electrolyte with a backing electrode to clean spots on large objects or things that shouldn't be submerged (things with lots of wood). The surface of the metal is left black. Rusty pits are still pits. Shiny unrusted metal is left untouched. This method will cope with any degree of rust, from surface to heavily scaled.

You can use stainless steel or junk iron for electrodes. I buy cheap stainless spoons at the flea market for treating small stuff in a plastic dishpan and large iron things to use as electrodes in my plastic trashcan bath. The brew will last until it gets so disgusting that you decide it is time for a fresh one. There is nothing especially nasty about the brew. It's mildly basic-so disposal is not a bio hazard, however you may not want all the crud in your drains. The flowerbed works as one alternative (iron is generally good for plants). One caution: Painted surfaces *may* be damaged when using this method.

The clean object will acquire surface rust very quickly. I worked for a company that sand blasted and coated the inside of line pipe. The studies they conducted showed rust begins to form in less than 12 minutes. So as quickly as possible you should wash with 90% isopropyl alcohol then wipe it dry, then further dry in a warm oven or with a hair dryer. Then oil with a 10w oil or one of the new synthetic oils can be used. I have found the synthetic oils last the longest by far.

On any metal on which I have just used electrolysis, I generally treat immediately with a hard paste wax, applied directly to the part. It should be hot enough to melt the wax (remove any excess wax with a shop towel or some Scotch Brite). The hotter the part the better the wax absorption as hot metal actually allows the wax to permeate the metal. This method will last for years. The oven or a heat gun is handy here. Try it--it beats any other restoration method I have used. This application gives a better end product rather than the pickled look that acid gives which totally destroys the value of the object.

Electrolysis is a tried and true method of restoration. It does have pros and cons, caution and common sense should always be used. When working on any project, correct and adequate protection should be used when working with hot metal, chemical fumes, electricity or mild acid, which are dangerous when not used properly. Be sure you understand that electricity and some of the chemicals in this application can be hazardous. Use of common sense can prevent a trip to the emergency room. One last note: The electrode is connected to the positive (red) terminal and the OBJECT being cleaned, to the negative (black). Reverse the polarity and your object is being eaten away!!! **Arthur Behrends Jr.**

26003A Navy Keys. There was a comment in Keyletter #37 from Ben Smith that had me wondering if anybody else noticed: "There are a few guys left that can send at forty WPM with a bug. Most of them are dead."

He goes on to say that the Signalmen used a key to send with the truck lights, and probably used a key more than the radio ops. Well, the standard key for the purpose was a 26003A which was actually specified as a "Key, Signalling, Searchlight."-- scan of an early spec is at <http://www.mtechnologies.com/n1fn/lampkey.jpg>. Anyhow, they were made by 10-12 manufacturers from before WW-II into the 1960s. When used to key the truck lights the key was mounted on a bulkhead on the bridge (or on the Signal Bridge on larger vessels). I am not sure how they used it to key searchlights. Anyhow, the popular mythology (to the extent that I've heard this more than once) is that the 26003A was a much better key than the ones the Navy was installing in radio rooms, so the radio ops got into the habit of stealing them. Not sure how true that is, but they do have the best feel of any of the "flameproofs" that I've played with and I know lots of them are still in use in ham shacks. **Marshall Emm, N1FN.**

Mecograph variations. A couple of years ago I was looking through issues of "*The Telegraph Age*" for the year 1906. I noticed that Mecograph was advertising their Model #3 right through May of that year.

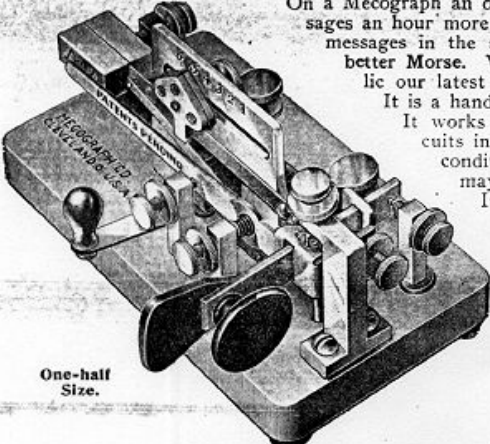
But, starting in August, for only two months, they were advertising a new, "Model # 4" that had ball bearings and a round pendulum. I had never seen a reference to that model number.

The closest example of a model that is similar to the one shown in this ad was listed by Doug Palmer, in Keyletter # 34, in his "Field Guide To The Mecographs", where he mentions a "Cost-Reduced Model #3" with a round pendulum that did not have Mecograph's typical spring tension release arm as verified by the few collectors that own them.

The Model # 4 in these ads clearly show a spring tension release arm and represents more completely what was shown and described in patent # 855,085 by B.F. Bellows, filed that summer in July of 1906. (with exception of the location of the circuit closer.)

Ask the Operators

On a Mecograph an operator with a bad arm can send eighty messages an hour more easily than the best operator can send thirty messages in the same time with a Morse key, and can send better Morse. We are now offering to the telegraphing public our latest and best instrument, **MECOGRAPH NO. 3**. It is a handsome, well made, brass automatic transmitter. It works perfectly over the longest and heaviest circuits in the country. It is easily adjusted to all wire conditions. Its sending is even and uniform, and may be made light or heavy at will of operator. It is in constant use by Press, Broker, Commercial and Railroad Operators and Train Dispatchers.



One-half
Size.

MECOGRAPH No. 3

The Best Telegraphic Transmitter in the World

NO WINDING,	NO BATTERIES,
NO RUST,	NO RATTLE,
	NO SPLIT DOTS.

Price f. o. b. factory \$10.00 cash
In neat carrying case \$1.00 extra.

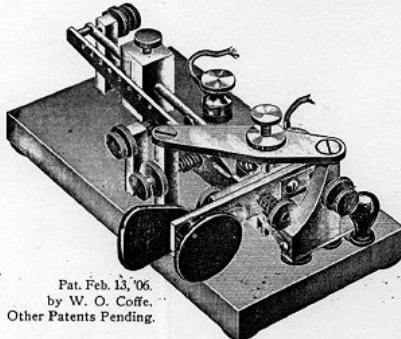
We put no machines out on consignment. All orders, whether through agents or direct from purchaser, are shipped from factory, and each instrument is carefully tested and adjusted just before going out. Write for circular.

MECOGRAPH CO., 74 Frankfort Street, Cleveland, Ohio, U. S. A.

ASK THE OPERATORS

YOU MUST have an automatic transmitter if you wish to send perfect Morse, easily and rapidly.

**THE BALL-BEARING MECOGRAPH (No. 4) IS, WITHOUT DOUBT,
THE BEST AUTOMATIC TRANSMITTER ON THE MARKET**



Pat. Feb. 13, '06.
by W. O. Coffe.
Other Patents Pending.

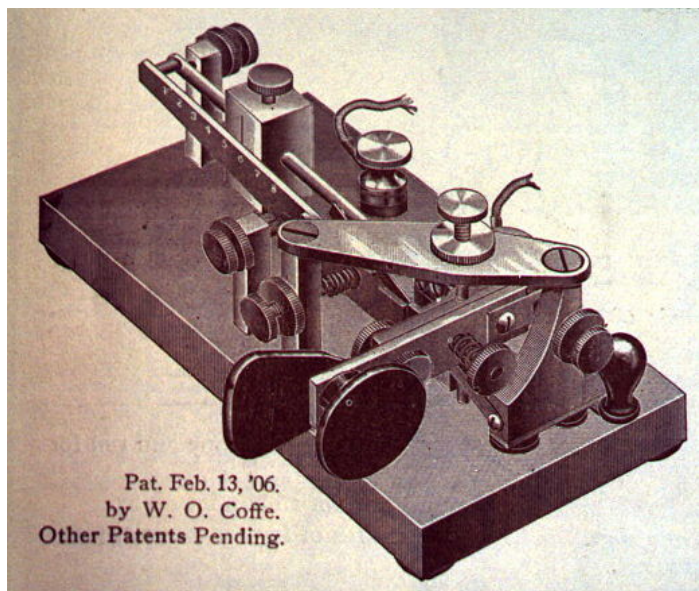
This "Mill" excels all others in speed, lightness of touch and ease of manipulation. It is adjustable to the needs of any sender. Signals may be made light or heavy, slow or fast, to suit conditions. The Mecograph is used regularly on the longest, fastest, heaviest circuits in the country in all kinds of weather.

On a Mecograph an operator with a bad arm can send eighty messages an hour more easily than the best operator can send thirty messages in the same time with a Morse key, and can send **BETTER MORSE**.

The Mecograph is in constant use by Press, Broker, Commercial and Railroad Operators and Train Despatchers. It can be attached to or detached from any wire instantly. Requires neither winding nor batteries.

Until Sept. 15, '06, we will sell any style Mecograph for \$7.50 f.o.b. Cleveland, Cash with order. Send in orders early, and state which number is desired. Write for circular.

MECOGRAPH CO., 74 Frankfort Street, Cleveland, Ohio, U. S. A.



This model was introduced (in *The Telegraph Age*) right in the middle of a price war that was going on between Mecograph and U.E.M. (United Electrical Mfg.Co. Inc.) Horace Martin, in August of 1906, then general manager of UEM, was advertising his Vibroplex for \$10.00. Mecograph introduced the Model # 4 also for \$10.00 during this same month. In September, Martin lowered his price to \$7.50 resulting in Mecograph offering a choice of any of their models for \$7.50. The ads for August and September of 1906 during this price war seem to imply that a "Model 4" was indeed being sold by Mecograph - especially at these prices. It will be interesting to see if any ever show up exactly like the one advertised or if they were only produced without a release arm. (Allowing it to operate like a Vibroplex.) BTW, two weeks

after the "\$7.50" Mecograph ad, Martin went to \$5.00 and won the price war but was probably selling them at a loss.

Note that in the ad it mentions when ordering to, "state which number is desired". Also note the uncommon use of the word "mill" in describing a transmitter. This term is normally used in describing a telegrapher's typewriter. **John Casale, W2NI**

Bunnell/Orr & Howe Name tags. Last night I was tearing a part a junker Bunnell Box relay. It was not worth fixing up, but, it was good for parts. Anyhow, when I took off the bow tie tag I flipped it over and lo and behold, this was on the reverse side. I don't actually place any



significance to it, but, I thought it was odd because I'd never run across it before. Has anyone else? The other side has the standard Bunnell stamping on it. **Tim Patton, K4TJP**

Contact Re-surfacing. At the "Four Days In May" convention last year, I was displaying my Begali Magnetic Classic paddle, which led to a meeting and discussion with Bob Crane, W8SX. After the requisite Hogan/Schultz banter, I learned that Bob's field was involved with the characteristics of surfaces in low-force electrical contacts! Son of a gun!

A fascinating discussion ensued, during which I shared that it seemed that some days, I could set my paddle contact gap so close that no movement, or "click," could be perceived, while on other days they had to be much farther apart. He said that studies had shown that the surfaces involved were often very rough, and somewhat flat, and that their characteristics were affected by changes in atmospheric pressure, temperature, humidity, and other variables. Made sense to me.

A couple of months later, Bob wrote to me about his work on improving the contact characteristics on his Magnetic Classics, and here's an excerpt:

"...I decided to look at the contact surfaces carefully. What I saw on all of them was surprising, to say the least. They were all very rough from a quick machining process. In fact, I estimate that they were too rough to make a consistent electrical contact. In addition, the surfaces on the post contacts were machined flat. I carefully used some old metallographic polishing paper and created a smooth, to a 5x magnifier, hemispherical surface. I also smoothed the surfaces on the contact on the paddle arms. This made a big difference in the consistency of the keying characteristics of the paddle...These contacts are where the action is and should be hemispherical in shape and have a mirror-like finish. If these two conditions are met, then the electrical contact characteristics of the paddle would be much improved and keying would be consistent...The most important thing that I have

learned over the past couple of years in our work on low-force contacts is geometry of the contact surface is of paramount importance to their performance."

A bit later than that, at my request, Bob sent me three small swatches of polishing paper: fine, really fine, and practically smooth, along with directions for using them. Finally, last night, I had a chance to give it a try.

My present paddle is a Begali Signature Edition. I had been hesitant to try to disassemble it, for fear I'd ruin it, but my fears were unfounded. I found that one screw released each contact post, and I was able to find the ~2mm ball-bearing from the first one, after it skittered away on the floor. Using a 10X loupe for magnification, I carefully set to work, beginning with the coarsest paper, and trying for a slightly convex surface.

After a bit of pleasant work on all four contacts, I had really altered the surface topography of the contacts! I didn't have the right stuff to get a mirror finish, but I did change them from flattish, rough-looking surfaces to smooth, slightly rounded ones. The contacts on the arms were different from the ones on the posts: larger and flatter, they had a sort of a raised spiral on their surfaces. I don't know if I was able to round them much, but I was able to noticeably smooth their surfaces, and possibly increased the available contact area by widening the lands of the spiral.

The entire process didn't take much time, and when I reassembled the paddle and tried it out, the result was immensely gratifying. I could adjust both gaps as close, or closer, than ever before, and I expect that there will be far less variability in the minimum gap possible from changes in day-to-day conditions. **Lloyd Lachow, K3ESE**

Phelps Keys. The "Phelps key" was produced by George Phelps for approximately 18 years. It appears he first introduced the key in the spring of 1861. The total run lasted until 1879. This eighteen year run can be quickly divided into two eras within this period for easy dating. The key was manufactured for the American Telegraph Company from 1861 to 1866, and for the Western Union Telegraph Company from 1866 to 1879.

Both companies engraved serial numbers and they appear to run sequentially with each company. The Western Union era Phelps keys are the most "common" and I would estimate that the highest serial numbers were around 10,000 +/- .

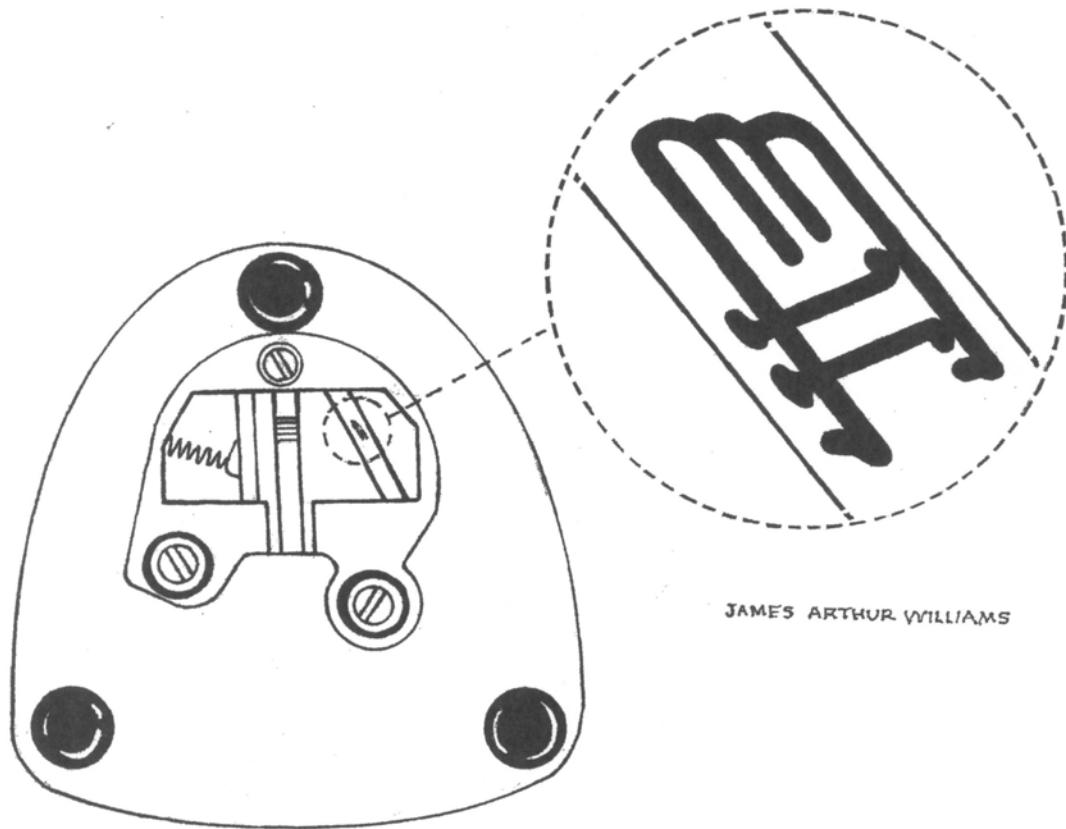
The Phelps key was one of several instruments designed by George Phelps that were initially known and classified as the "American Pattern" - the standard instrument patterns used by the American Telegraph Company. When Western Union purchased the American Telegraph Company, these same instruments became known as the "Western Union Pattern". Several other manufacturers built their own interpretation of these instruments and advertised them as being from these patterns. It was common in early ads from various manufacturers to see a key resembling a Phelps key being called a "Western Union Curved Lever Key" or being of a "Western Union Pattern" with no reference to the name "Phelps".

A few other notes/misconceptions about Phelps keys:

1. There seems to be a common claim that Phelps keys are "all" Civil War era keys. From the above, the only true, Civil War era Phelps keys are ones with American Telegraph Company markings.
2. There was never a claim by Phelps for being the first maker to come up with the idea of using a spring tension adjustment for the key lever. He just made the decision to move the adjustment to a location on the lever to provide the best lever tension and balance for "his" key. As it turned out, other key makers right into the 20th century followed this design move for their keys. The location of the spring tension adjustment on a common J-38 or a Bunnell Triumph lever for example, can be traced back to Phelps.
3. As of this date, I have not seen any reference as to Phelps manufacturing any of his instruments for other manufacturers. There is overwhelming evidence that he had a hard enough time keeping up with the needs of the two companies he worked for. I would be suspicious of claims that instruments were made by Phelps unless they have his name, a serial number, and one of the two companies listed above engraved on the instrument.
4. Early instruments made by the Western Electric Manufacturing Company, New York were identical to "Phelps" instruments but had no Phelps markings. In 1879, Western Union sold their New York factory to the Western Electric Manufacturing Company. Phelps was no longer the superintendent of the shop, but his old shop, with the same, former, Western Union machinists, continued to produce instruments of the "Western Union Pattern" for a short time and began another group of serial numbers. *John Casale, W2NI*

Autronic Paddles. Since I am now in my octogenetic year, and not wishing to have my collection of telegraphic instruments sold across tables at yard sales, or have some curious person say "I'll give you a buck for it", I have reduced the number of pieces considerably over the past year by making them available to hams and collectors who will appreciate them. My resolve not to acquire more items (unless it's a nice bug) was weakened when I was offered at a recent hamfest a duplicate Autronic key, complete with the original instructions and advertising literature.

A review of the submissions in the N7CFO Newsletter and a study of Tom French's description of the complex mechanism of the key in TVC No.7 caused me to take a careful look at my latest key. As it was held upside down, I saw what appeared to be an imperfection on the finish of the yoke. With a magnifying glass, the "imperfection" became a carefully designed figure:



Both Autronics have the same figure in the same location. There does not seem to be any suggestion of “A” for Autronic, “J” for John Jakosky, “E” for electrophysics or anything marine oriented. It would be interesting to know if the figure is present on all Autronics and to understand its significance.

My thanks to Bob Schindler VE3CC, who offered me the duplicate key; to Tom French for his article; to all who sent material to Lynn Burlingame who published them in the N7CFO Newsletter; and to James Williams, professional graphic artist and noted aircraft artist for graciously making the drawing. **Stan Riome, VE3STN/K5STN.**

Well friends. That is it for Keyletter #38. As always, your comments (and submissions) are welcome, so please keep those cards, letters and emails coming.

Lynn
N7CFO/VA7CFO